PHYSICAL SCIENCE 4 EVER
Imagine · Inspire · Invent

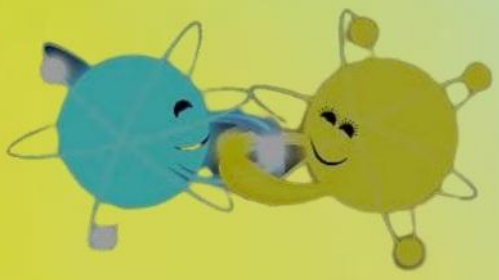
K.V.R G.V.R

MODEL TEST PAPERS

Physical Science

10th Class

AP SCERT
+ 5 MODEL PAPERS



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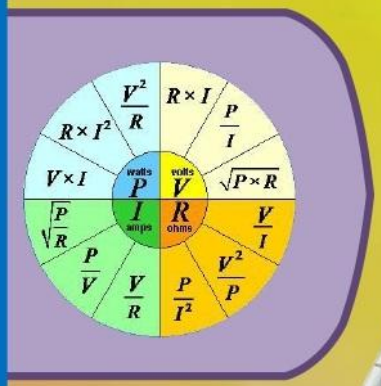
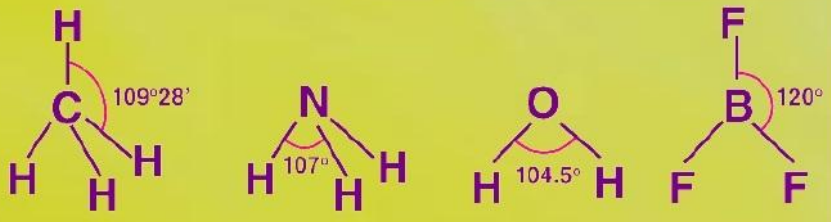




Expected Questions

2021-2022

pH Scale

ముందుమాట

గౌరవ నీయులైన ఉపాధ్యాయులకు, ప్రియమైన విద్యార్థులకు,

ముందుగా మీ అందరికి **శుభకృతు** నామ సంవత్సర ఉగాది శుభాకాంక్షలు.

విద్యార్థులకు భౌతిక రసాయన శాస్త్రంలో మంచి మార్కులు సాధించేందుకు మార్గదర్శక మెటీరియల్ లను అందించేందుకు ఎల్లప్పుడూ ముందుండే మీ ఫిసికల్ సైన్స్4ఎవ్వర్ నుండి మరొక అద్భుత పుస్తకం ఈ మోడల్ ప్రశ్నాపత్రాలు

మేము ఈ మాదిరి ప్రశ్నాపత్రాలను విద్యార్థులందరూ పదవ తరగతి పబ్లిక్ పరీక్షలలో మంచి మార్కులు పొందేందుకు సహాయ పడే విధంగా తయారు చేయడం జరిగింది.

మేము తయారు చేసిన ఈ ప్రశ్నా పత్రాలలో, ప్రశ్నలు పునరావృత్తం అవకుండా సిలబస్ మొత్తం కవర్ అయ్యే విధంగా ఇవ్వడం జరిగింది.

కొన్ని ప్రశ్నలలో ముఖ్యంగా ప్రయోగాలు అడిగే వానిలో పటము ఉంటే, ఆయా పటాలను విడిచిపెట్టి మిగిలిన పటాలను, పటాలకు సంబంధించిన 33 వ ప్రశ్నలందు ఇవ్వడం జరిగింది. అనగా విద్యార్థులు మామూలు ప్రశ్నలందు గల పటాలను నేర్చుకున్న, పటాల ప్రశ్నలకు కూడా సమాధానాలు వ్రాయ గలరు.

మీరు జాగ్రత్తగా గమనిస్తే, 4 పేపర్లలో పాఠానికి 4 చొప్పున, మొత్తం 4 x 10 పాఠాలు = 40 దీర్ఘ సమాధాన ప్రశ్నలు మీరు నేర్చుకుంటారు.

అదేవిధంగా 1/2 మార్కు ప్రశ్నలు 12 x 4 పేపర్లు = 48, 1మార్కు ప్రశ్నలు 8 x 4 పేపర్లు = 32, 2 మార్కుల ప్రశ్నలు 8 x 4 పేపర్లు = 32 చదువుతారు.

మా అంచనా ప్రకారం, మీ పరీక్షలలో మంచి మార్కులు సాధించడానికి మా ఈ మాదిరి ప్రశ్నా పత్రాలు బాగా ఉపయోగపడవచ్చు.

కావున ప్రియమైన విద్యార్థులారా, మీరు ఇందులో ఏ ప్రశ్నను వదలకుండా చదవండి. పరీక్షలలో ప్రశ్నల తీరు మారవచ్చు కానీ, ఈ ప్రశ్నలు వచ్చుటకు (ఈ సమాధానాలు వాటికి మార్చి వ్రాసేవిధంగా) ఎక్కువ అవకాసము ఉన్నదని మా ఉద్దేశం.

విద్యార్థులకు అవగాహనను కల్పించుటకు మాత్రమే కొన్ని ప్రశ్నలను సి.సి.ఇ పద్ధతిలో ఇవ్వడమైనది.

కానీ ఈ సంవత్సరం పరీక్షలలో నేరుగా పాఠ్యపుస్తకాల్లో గల ప్రశ్నలనే అడిగే అవకాశం ఉంది.

కావున విద్యార్థులు మా ఈ మాదిరి ప్రశ్నా పత్రాలను వినియోగించుకొని మంచి మార్కులు పొందగలరని ఆశిస్తున్నాము.

ఉపాధ్యాయులు దయచేసి మీరు మీ విద్యార్థులకు ఈ మోడల్ పేపర్లు చదివించ వలసినదిగా ప్రార్థన.

మీ ఫిజికల్ సైన్స్ 4 ఎవ్వర్ టీమ్

ఈ ప్రశ్నాపత్రములలోని ప్రశ్నల జవాబుల కోసం ఈ క్రింది Q.R CODE ను స్కాన్ చేయగలరు. లేదా క్రింది లింకును సందర్శించగలరు.

SSC PUBLIC EXAMINATIONS - 2022

PHYSICAL SCIENCE – MODEL PAPER - I

Class : X | Max.Marks : 50 | Time : 2hrs.45min.

Instructions :

1. *15 minutes of time is allotted for reading the question paper in addition to 2.30 hours for writing the answers.*
2. *All the answers should be written in the separate answer booklet.*
3. *There are four sections in the question paper.*
4. *There is an internal choice in Section IV.*
5. *Write all the answers visibly & legibly*

SECTION - I 12 × ½ = 6 M

Note: 1. Answer all the questions.
2. Each question carries ½ mark

1) ..... is defined as the degree of hotness or coldness.
2) Latent heat of vapourisation of water is ..... ( )
   A) 500 cal/gm B) 540 cal/gm
   C) 80 K cal/gm D) 500 K cal/gm
3) Imagine and write which gas will be evolved generally when a metal reacts with an acid.
4) A : Aqueous sodium chloride is called brine solution ( )
   B : $Mg(OH)_2$ is alkali solution (Alkali)
   K) Only A is true
   L) Only B is true
   M) Both A and B are true
   N) Both A and B false
5) Write any one use of a lens in our daily life?
6) Lens Shape ( )
   1. Biconvex lens ( ) p)
   2. Biconcave lens ( ) q)
   r)

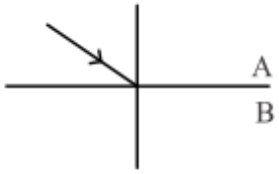
Match the above
A) 1 - p, 2 - q B) 1 - q, 2 - p
C) 1 - q, 2 - r D) 1 - r, 2 - p

7) Which is the coloured part that we see in our eye ?
8) Which of the following is the Plank's constant.
   A) 6.626×10^{-34} JS B) 6.626×10^{-34} J/S
   C) 6.626×10^{-27} JS D) 6.626×10^{-27} J/S
9) When asked Swarup to give examples for Halogens, he stated as Flourine, Chlorine, Neon, Bromine. By observing the examples given by Swarup find and write which element is not a halogen among them.
10) According to octet rule 'Argon' demonstrates stability, assume and write how many electrons are there in it's outer most orbit.
11) What is the SI unit of "Potential difference".
12) Write name of any metal that is helpful in our daily life.

SECTION - II 8 × 1 = 8 M

Note: 1. Answer all the questions.
2. Each question carries 1 mark

13)



A is less optically denser than B. Keeping in view of optical densities rewrite and complete the diagram in your answer sheet.
14) Write any two required materials to determine the focal length of a lens using UV method in laboratory?
15) What is least distance of distinct vision of a healthy human ?
16) An electron in an atom has the following set of four quantum numbers

n	l	m_l	m_s
2	0	0	+½

On the basis of the above table. Which orbital does the electron belong.
17) Give any one example for Dobereiner's Triads.
18) Write any other name of 'Ionic Bond'.
19) What do you call a character of Electric conductor that opposes the motion of electron.
20) Write any two highly reactive metals you know.

SECTION - II 8 × 2 = 16 M

Note: 1. Answer all the questions.
2. Each question carries 1 mark

21) Assume and write why do we have sweat while doing work.

22) Let A, B, C materials have given red, yellow, red colours when react with methyl orange respectively.
1) Among A, B, C which are acids, which are bases.
2) What is the change in colour when phenolphthalein added to B.

23) Write any two required materials to do the activity to prove that 'the focal length of a lens depend on its surroundings and also write any one precaution to do this activity.

24) Doctor suggested to use 4D lens. What is the focal length of the lens?

25) Explain nl^x method briefly.

26) What is the bond angle of the following.
1) Angle of HOH in water molecule
2) Angle of HNH in Ammonia

27) Explain what happen to the value of resistance of a conductor if its cross sectional area is doubled and length is kept under constant.

28) Write any two questions to understand how the metals extracted from their ore ?

SECTION - III 5 × 4 = 20 M

Note: 1. Write answer for all all the questions.
2. There is an internal choice for each question.
3. All questions carry equal marks.
4. Each question carries 4 marks

29) Write the appropriate reasons for the following phenomenon.
a) Water melon brought out from a refrigerator retains its coolness for a longer time than other fruits.
b) Oceans behave like heat store houses for the earth.

(OR)

What is myopia ? How can we rectify it?

30)

Solution	A	B	C	D	E	F
pH value	0	1	4	7	11	14

By observing the above table answer the following in A, B, C, D, E, F solutions.
1) Which is the strongest acid ?
2) Which is the weak acid ?
3) Which is the strongest base ?
4) Which is neutral ?

(OR)

Classify the following in to oxides, sulfides, sulfates separately

Matter	Bauxite	Zinc Blend	Pyrolusite	Zincite	Heamatite	Cinnabar	Epsom salt	Galena
Fomula	$Al_2O_3\ 2H_2O$	ZnO	MnO_2	ZnO	Fe_2O_3	HgS	$MgSO_4\ 7H_2O$	PbS

31) Write the lab activity to obtain a relationship between angle of incidence and angle of refraction (Snell's law)

(OR)

Write the lab activity to show that the ratio V/I (Ohm's law) is a constant for a conductor.

32) How the following periodic properties of atom trend in groups and periods.
A) Ionisation Energy
B) Electronegativity
C) Atomic radius
D) Electron affinity

(OR)

A, B and C are three elements with atomic numbers 6, 11 and 17 respectively then
1) Which of these can't form ionic bond ? Why ?
2) Which of these can't form covalent bond ? Why ?

33) An object is kept before a convex lens. Draw the ray diagrams to the following positions of object.
1) At $2F_2$
2) Beyond $2F_2$

(OR)

Draw a neat diagram of the filling order of atomic orbitals by electrons (Moeller's chart).

SSC PUBLIC EXAMINATIONS : APRIL 2022

Class: X | **MODEL PAPER - 1** | **Andhra Pradesh**

Time : 2:45 Hrs | **PHYSICAL SCIENCE** | **Max. Marks : 50**

Instructions:

1. *15 minutes of time is allotted for reading the question paper in addition to 2.30 hours for writing the answers.*
2. *All the answers should be written in the separate answer booklet.*
3. *There are four sections in the question paper.*
4. *There is internal choice in Section IV.*
5. *Write all the question visible & legible*

SECTION - I 12 × ½ = 6 M

Note: 1. Answer all the questions.
2. Each question carries ½ mark

1. _____ is a measure of thermal equilibrium.

2. The difference between boiling point of water in Kelvin scale and melting point of ice in Kelvin scale ( )
A) 0 K B) 100 K
C) 273 K D) 373 K

3. Imagine and write which gas will be evolved generally when an acid reacts with a metal hydrogen carbonate.

4. A:Bleaching powder is used for disinfecting drinking water.
B:Washing soda is used for removing permanent hardness of water. ( )
K) Only A is True
L) Only B is True
M) Both A and B are True
N) Both A and B are False

5. Write any one use of optical fibres our daily life?

6.

Image type	**Ray Diagram**
1. Magnified, Real	p) Beyond $2F_2$
2. Enlarged, Erected	q) Between $2F_2$ and F_2
	r) Between F_2 and O

Match the above
A) 1 - p, 2 – q B) 1 - q, 2 – p
C) 1 - q, 2 - r D) 1 - r, 2 – p

7. Which is the muscle attached to eye lens that helps the eye lens to change its focal length by changing the radii of curvature of the eye lens?

8. Which of the following is not a Plank's equation? ( )
A) E= hν B) h = Eν
C) h = E/ν D) ν = E/h

9. When asked Suma to give examples for Noble gases having octet in their outer most shell, she stated as Helium, Neon, Argon, Krypton. By observing the examples given by Suma find and write which Noble gas is not correct example among them.

10. According law of octaves, when elements are arranged in the ascending order of their atomic weights they fall into a pattern in which their properties repeat at regular intervals, assume and write in which number of element starting from a given element resembles in its properties to that of the starting element.

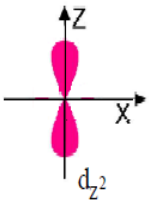
11. What is the SI unit of "current"?

12. Write the name of any two oxide ores of Iron.

SECTION - II 8 × 1 = 8 M

Note: 1. Answer all the questions.
2. Each question carries 1 mark

13. The given diagram represents incomplete d_{z^2} sub-shell. Keeping the view of the complete shape of that sub-shell re-write and complete the diagram in your answer sheet.



14. Write lens formula.

15. What is the angle of vision for healthy human?

16. Write the four quantum numbers for the electron in hydrogen atom.

17. Write any one example for ionic compound.

18. Write the name of the bond which is formed by sharing of the valence electrons with one or more atoms.

19. What do you call the reciprocal of resistivity?

20. Write the factors that refractive index depends on.

SECTION - II 8 × 2 = 16 M

Note: 1. Answer all the questions.
2. Each question carries 1 mark

21. Assume and write why do we get dew on the surface of a cold soft drink bottle kept in open air.

22. Let A and B give salt and water, when they react with non-metal oxide and metal oxide respectively.
1) Between A and B, which is acid and which is base.
2) Write one example for non-metal oxide?

23. Write any two required material to do the activity to 'understanding lateral shift using glass slab' and also write one precaution to do this activity.

24. Find the power of the lens, if its focal length is 50cm.

25. What is the use nl^x method? Explain.

26. What is the molecular shape of the following?
1) Shape of ammonia 2) Shape of water

27. Explain what happened to the value of resistance of a conductor if its length is doubled and cross sectional area is kept under constant.

28. Write any two questions to understand periodic table.

SECTION – IV **5 × 4 = 20 M**

Note:
1. *Write answer for all the questions.*
2. *There is an internal choice for each question.*
3. *All questions have equal marks.*
4. *Each question caries 4 marks.*

29. An optical illusion where it appears that water has collected on the road at a distant place but when we get there, we don't find any water. What is that optical illusion? Explain how it formed.

(OR)

Explain about the defect of some people cannot see objects at long distances but can see nearby objects clearly. How it is rectify, explain with labeled diagram

30. How can we call the property in which there shall be a regular gradation in the periodic table groups and periods? How do the following properties change in groups and periods?
(a) Atomic radius (b) Ionization
(c) Electron affinity (d) Electronegativity

(OR)

Write short notes on each of the following:
i) Roasting ii) Calcination
iii) Smelting

31. Your teacher asks you to find out the specific heat of lead shots.
(i) Which apparatus you required?
(ii) How can you do that experiment?
(iii) Write the formula you use for that?

(OR)

Who established "the ratio between V and I is constant for some materials at constant temperature"? How can you prove the above statement experimentally?

32. Observe the table and answer the following questions.
i) Write the sub-shell that have l value as 1? Write its shape.
ii) What are the maximum and minimum values of m_l for a particular "l"?
iii) Which quantum number doesn't have its value as zero?
iv) Write the names of the quantum numbers given in the table.

n	l	m_l
1	0	0
2	0	0
	1	-1, 0, +1
3	0	0
	1	-1, 0, +1
	2	-2, -1, 0, +1, +2

(or)

A, B and C are three elements with atomic number 6, 11 and 17 respectively.
i) Which of these cannot form ionic bond? Why?
ii) Which of these cannot form covalent bond? Why?
iii) Which of these can form ionic as well as covalent bonds?

33. Draw the ray diagrams of the following situations in the case on convex lens also mention the position of the object and other image characteristics.
(a) To get same size image.
(b) To get virtual image.

(or)

Draw the neat labelled diagram that shows the acidity of acids is attributed to the H^+ ions produced by them in solutions.

SSC PUBLIC EXAMINATIONS : APRIL 2022

Class: X | **MODEL PAPER - 2** | **Andhra Pradesh**

Time : 2:45 Hrs | **PHYSICAL SCIENCE** | **Max. Marks : 50**

Instructions:

1. *15 minutes of time is allotted for reading the question paper in addition to 2.30 hours for writing the answers.*
2. *All the answers should be written in the separate answer booklet.*
3. *There are four sections in the question paper.*
4. *There is internal choice in Section IV.*
5. *Write all the question visible & legible*

SECTION - I 12 × ½ = 6 M

Note: 1. Answer all the questions.
2. Each question carries ½ mark

1. Find the specific heat of a substance, when it's mass is 'm' and the required heat is 'Q' to raise one degree Celsius.

2. A: Baking powder is used in making of bread or cake to make them soft and spongy. [ ]
R: When baking powder is heated carbon dioxide gas produced.
A) Both A and R are correct, R is not correct explanation of A.
B) A is correct, R is not correct.
C) Both A and R are correct, R is correct explanation of A.
D) A is not correct, R is correct.

3. At critical angle of incidence, the angle of refraction is [ ]
A) 0^0 B) 45^0 C) 60^0 D) 90^0

4. The lens which can form real and virtual images is _____.

5. The maximum and minimum focal length value pair for human eye among the following is: [ ]
A) 25cm, 2.5cm B) 25cm, 2.27cm
C) 2.5cm, 2.27cm D) 2.27cm, 2.5cm

6. L- shell : 8 :: M- shell : _____.

7. Arrange the following orbitals in ascending order of their energies.
3s, 2p, 4s, 2s, 3p, 1s, 3d

8. $n_1 \sin i = n_2 \sin r$, is called _____.

9. Write the Dobereiner's triad, which elements belong to halogen family.

10. Write the bond angles in H_2O and NH_3.

11. Drift speed of the charge q, V_d
(I/nqA, q/InA, nI/qA, nA/Iq)

12. Match the following.

a) Never found in nature	( )	i) Hg, Ag, Pt, Au in free state
b) Found in earth crust	( )	ii) Zn, Fe, Pb, Cu
c) Found in nature Free State	( )	iii) K, Na, Ca, Mg, Al

A) a-iii, b-ii, c-i B) a-i, b-ii, c-iii
C) a-ii, b-iii, c-i D) a-ii, b-i, c-iii

SECTION - II 8 × 1 = 8 M

Note: 1. Answer all the questions.
2. Each question carries 1 mark

13. On which factors does rate of evaporation depend?

14. Complete the following equation.
$2NaOH_{(aq)} + Zn_{(s)} \rightarrow$ _____ $+ H_{2(g)} \uparrow$

15. Why does the light ray deviate in refraction?

16. A convex lens is made up of three different materials as shown in the figure.
How many of images does it form?

17. Are the head lights of a car connected in series or parallel? Why?

18. Mention two methods which produce very pure metals.

19. Write the Lewis notation for Ne and Ar.

20. Define Bohr's orbit.

SECTION - II 8 × 2 = 16 M

Note: 1. Answer all the questions.
2. Each question carries 1 mark

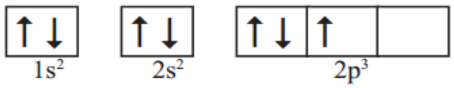
21. What is acid-base reaction? Give two examples.

22. Give the reason behind the shining of diamonds. How do you appreciate it?

23. Write Lens maker's formula and explain the terms in it.

24. Explain about the reason for the blue of the sky.

25. Following orbital diagram shows the electronic configuration of nitrogen atom.

N (Z = 7) 

Which rule does not support this?

26. Explain the method used for concentration of sulphide ore with neat diagram.

27. Explain the difference between the valence electrons and the covalency of an element.

28. What would be the final temperature of a mixture of 50g of water at 20°C temperature and 50g of water at 40°C temperature?

SECTION – IV **5 × 4 = 20 M**

Note:

1. *Write answer for all the questions.*
2. *There is an internal choice for each question.*
3. *All questions have equal marks.*
4. *Each question caries 4 marks.*

29. How can you differentiate between the process of escaping of molecules from the surface of a liquid at any temperature and the process in which the liquid phase changes to gaseous phase at a constant temperature at a given pressure.

(OR)

Write the process of finding the focal length of a lens experimentally?

30. Given below is the electronic configuration of elements K, L, M, N.

K. $1s^2 2s^2$
L. $1s^2 2s^2 2p^6 3s^2$
M. $1s^2 2s^2 2p^6 3s^2 3p^3$
N. $1s^2 2s^2 2p^6$

1. Which are the elements coming within the same period?
2. Which are the elements coming within the same group?
3. Which are the noble gas elements?
4. To which group and period does the element 'M' belong?

(or)

Define the phenomenon of hybridization? Explain the formation of the boron tri-fluoride (BF_3) molecule using hybridization.

31. List out the material for the experiment to investigate whether all compounds containing Hydrogen are acids or not and write the experimental procedure.

(or)

"The presence of air and water is essential for corrosion", suggest an experiment to prove the above statement. Explain the procedure.

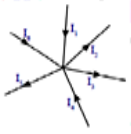
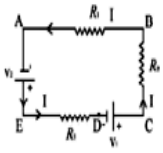
32. Observe the table of refractive indices of some material media and answer the following questions.

Material Medium	Refractive index
Air	1.0003
Ice	1.31
Water	1.33
Kerosene	1.44
Fused quartz	1.46
Turpentine	1.47
Benzene	1.50
Diamond	2.42

i) In which medium the speed of light is more?
ii) Find the speed of light in Benzene.
iii) Calculate the refractive index of the Kerosene with respect to water.
iv) In between, which of the two mediums, we cannot identify refraction.

(or)

From the given table shows Kirchhoff's laws, by observing them, answer the following questions.

S. No.	Diagram	Equation
1		$I_1+I_4+I_6 = I_5+I_2+I_3$
2		$IR_1 + IR_2 - V_1 + IR_3 - V_2 = 0$

i) Write the name of the law represent in the 1st diagram.
ii) State the law represent in the 1st diagram.
iii) Name the law that represents in 2nd figure in the table.
iv) The above 2nd equation is written by based on which conservation law.

33. Draw the diagrams showing the defect of near sightedness and its correction.

(or)

Draw the neat labelled diagrams of the orbitals which have *l* value as 2.

SSC PUBLIC EXAMINATIONS : APRIL 2022

Class: X | **MODEL PAPER - 3** | **Andhra Pradesh**

Time : 2:45 Hrs | **PHYSICAL SCIENCE** | **Max. Marks : 50**

Instructions:

1. *15 minutes of time is allotted for reading the question paper in addition to 2.30 hours for writing the answers.*
2. *All the answers should be written in the separate answer booklet.*
3. *There are four sections in the question paper.*
4. *There is internal choice in Section IV.*
5. *Write all the question visible & legible*

SECTION – I 12 × ½ = 6m

Note:

1. *Answer all the questions.*
2. *Each question carries ½ mark*

1. SI unit of heat is _____.

2. Take 2ml of NaOH in a test tube, add two drops of Phenolphthalein solution and then add few drops of dil. HCl to it. What is your observation with respect to colour?

3. When the light ray travels from denser medium to rarer medium it is not deviated. Assume and write how the light travels in the above case.

4. Match the following

1. Relative refractive index n_{12}	( )	P) n_1/n_2
2. Refractive index of vacuum	( )	Q) n_2/n_1
		R) 1

5. Find the focal length of plano convex lens, when its radius of curvature of the surface is R and n is the refractive index of the lens.

6. What is the maximum focal length of human eye?

7. The midpoint of a thin lens is called
A) centre of curvature B) optic centre
C) focus D) radius of curvature

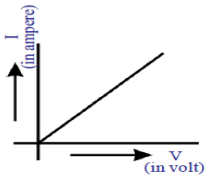
8. L-shell : s-orbital, p-orbital :: N-shell :___.

9. X: Dobereiner's triad example Cl, Br, I
Y: Dobereiner's triad example S, Se, Fe
Which is/are correct?
A) X correct, Y not correct
B) X not correct, Y correct
C) X correct, Y correct
D) X not correct, Y not correct

10. What type of hybridization present in NH3?

11. Name the process of concentration of sulphide ore.

12. The given figure indicates which type of conductors in the case of Ohm's law?



SECTION – II 8 × 1 = 8M

Note:

1. *Answer all the questions.*
2. *Each question carries **1** mark.*

13. Convert 20°C into Kelvin scale.

14. What happens when an acid or a base is mixed with water?

15. What is critical angle?

16. Which method is suitable to enrich sulphide ores?

17. What are factors which affect the resistance of a material?

18. Write the shape of ammonia molecule.

19. A teacher asked to give an example for Dobereiner's triad. Ramu wrote them as "Li, Na, Mg". In these three, identify which element does not belongs to this triad?
A) Li B) Na C) Mg

20. "No two electrons of the same atom can have all the four quantum numbers same" which principle states like this?

SECTION – III 8 × 2 = 16 M

Note:

1. *Answer all the questions.*
2. *Each question carries **2** marks.*

21. Define the terms: (i) gangue (ii) slag

22. The electronic configuration of the elements X and Y are given below.
a) X = 2 b) Y = 2, 6
i) Which element belongs to second period?
ii) Which element belongs to 18th group?

23. What is an orbital? How it is different from Bohr's orbit?

24. Why does tooth decay start when the pH of mouth is lower than 5.5?

25. What is the value of 1 KWH in Joules?

26. Give the reason for twinkling of stars?

27. How much energy is transferred when 1gm of boiling water at 100^{o}C condenses to water at100^{o}C?

28. Write curved surface formula and its terms.

SECTION – IV **5 × 4 = 20 M**

Note:

1. *Write answer for all the questions.*
2. *There is an internal choice for each question.*
3. *All questions have equal marks.*
4. *Each question caries 4 marks.*

29. (a) "The rate of evaporation of a liquid depends on its surface area and vapour already present in surrounding air". Suggest an experiment to prove this statement.

(or)

(b) The equivalent resistance of a series combination is greater than the resistance of each of the resistors. Explain.

30. (b) Five solutions A, B, C, D and E when tested with universal indicator showed pH as 4, 1, 11,7 and 9 respectively, which solution is

a) neutral
b) strongly alkaline
c) strongly acidic
d) weakly acidic
e) weakly alkaline

Arrange the pH in increasing order of hydrogen ion concentration.

(or)

(b) Write down the characteristics of the elements having atomic number 17.

1. Electronic configuration _____
2. Period number _____
3. Group number _____
4. Element name _____
5. Element family _____
6. No. of valence electrons _____
7. Valency _____
8. Last shell in this element_____

31. (a) Explain the refraction of light through the glass slab with a neat ray diagram.

(or)

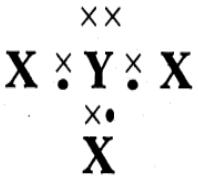
b)Suggest an experiment to produce a rainbow in your classroom and explain the procedure.

32. Classify the following in to oxides, sulfides, sulfates separately.

Bauxite	Zinc Blend	Pyrolusite	Zincite	Hematite	Cinnabar	Epsom Salt	Galena
$Al_2O_3.2H_2O$	ZnS	MnO_2	ZnO	Fe_2O_3	HgS	$MgSO_4.7H_2O$	PbS

(or)

A chemical compound has following Lewis notation.



a) How many valence electrons does element Y have?
b) What is the valency of element X?
c) How many lone pairs are there in the molecule?
d) How many covalent bonds are there in the molecule? A chemical compound has following Lewis

33. Draw the ray diagrams of the following situations in the case on convex lens having focal length 15 cm. Also mention the position of the object and other image characteristics.

(i) When the object placed at 35 cm. distance from the lens.

(ii) When the object placed at 20 cm. distance from the lens.

(or)

Draw the neat diagrams showing the shapes of the orbitals present in L shell.

SSC PUBLIC EXAMINATIONS : APRIL 2022

Class: X | **MODEL PAPER - 4** | **Andhra Pradesh**

Time : 2:45 Hrs | **PHYSICAL SCIENCE** | **Max. Marks : 50**

Instructions:

1. *15 minutes of time is allotted for reading the question paper in addition to 2.30 hours for writing the answers.*
2. *All the answers should be written in the separate answer booklet.*
3. *There are four sections in the question paper.*
4. *There is internal choice in Section IV.*
5. *Write all the question visible & legible*

SECTION – I 12 × ½ = 6 M

Note:

1. *Answer all the questions.*
2. *Each question carries ½ mark*

1. SI unit of specific heat is _____.

2. Match the following.

a) pH of Acidic solutions ( ) 1) less than 7

b) pH of Basic solutions ( ) 2) 7

c) pH of Neutral solutions ( ) 3) greater than 7

3. Which law is indicated by second law of refraction?

4. In which case the focal length of a lens is equal to image distance?

5. Which of the following is incorrect?

P: Cr (Z=24) = $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^1\ 3d^5$

Q: Cu (Z=29) = $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^1\ 3d^{10}$

A) Only P B) Only Q

C) Both P and Q D) None

6. Assume X, the atomic weight of Sodium, from the given example of Dobereiner's triad.

Lithium (Li)	Sodium (Na)	Potassium (K)
7.0	**X**	**39.0**

7. The ability of eye lens to change its focal length is called _____.

8. eka-boron : scandium :: eka-silicon : ____.

9. Arrange the molecules, ascending order of their bond angles.

($BeCl_2$, BF_3, NH_3, CH_4, H_2O)

10. Which physical quantity is given by the product of potential difference and the current?

(11-12) Observe the given information and answer the following.

Electronic configuration of an element: 2, 8, 7

11. What is the valency of this element?

12. Write the number of valency electrons in this element.

SECTION – II 8 × 1 = 8 M

Note:

1. *Answer all the questions.*
2. *Each question carries **1** mark.*

13. What do acids have common?

14. List two metals that are found in nature in uncombined form.

15. Draw the diagram, which shows the filling order of atomic orbitals.

16. Who proposed ionic bond?

17. How can we call thick mist?

18. What is the value of reactive index of vacuum?

19. In dispersion of light how many colours we get?

20. Find the focal length of the plano-convex lens, when its radius of curvature of the surface is R and n is the refractive index of the lens.

SECTION – III 8 × 2 = 16 M

Note:

1. *Answer all the questions.*
2. *Each question carries **2** marks.*

21. What role does specific heat play in keeping a watermelon cool for a long time after removing it from a fridge on a hot day?

22. How does the flow of acid rain into a river make the survival of aquatic life in a river difficult?

23. A double convex lens has two surfaces of equal radii 'R' and refractive index n = 1.5. Find the focal length 'f'.

24. Write the difference between potential difference and emf.

25. Predict the reasons for low melting point for covalent compounds when compared with ionic compounds.

26. What is thermite process? Mention its applications in daily life.

27. Which rule is violated in the electronic configuration 0, 6? Explain why?

28. An element X belongs to 3rd period and group 2 of the periodic table.
State a) The no. of valence electrons b) The valency

SECTION – IV **5 × 4 = 20 M**

Note:
1. *Write answer for all the questions.*
2. *There is an internal choice for each question.*
3. *All questions have equal marks.*
4. *Each question caries 4 marks.*

29. What is total internal reflection? Explain it with one or two activities.

(OR)

Define the following terms.
(a) Electric current
(b) Resistance

30. In an atom the number of electrons in M-shell is equal to the number of electrons in the K and L-shell. Answer the following questions.
a) Which is the outermost shell?
b) How many electrons are there in its outermost shell?
c) What is the atomic number of element?
d) Write the electronic configuration of the element.

(or)

Explain the formation of sodium chloride on the basis of the concept of electron transfer from one atom to another atom.

31. What is meant by "water of crystallization" of a substance? Describe an activity to show the water of crystallization.

(or)

Write an experiment showing the reaction of acids with metals.

32. Observe the table and answer the following questions.

Substance	Lead	Brass	Zinc	Copper	Iron	Aluminum	Ice	Sea water	Water
Specific Heat (Cal/g. °C)	0.003	0.092	0.093	0.095	0.115	0.21	0.50	0.95	1

a) What is SI unit of specific heat?
b) Which liquid is used as a coolant?
c) Which metal is slowly heated up among all given in table?
d) Which metal is best for cooking utensils?

(or)

Observe the table and answer the following questions in the case of convex lens.

Position of the object	Position of the image	Real/ Virtual image	Inverted / Erected image	Enlarged / Diminished image
Beyond $2F_2$	Between F_1 and $2F_1$	Real	Inverted	Diminished
At $2F_2$	At $2F_1$	Real	Inverted	Same size
Between F_2 and $2F_2$	Beyond $2F_1$	Real	Inverted	Enlarged
At F_2	Infinity	Real	Inverted	Highly enlarged
Between F_2 and O	Same side of the object	Virtual	Erected	Enlarged

a) At which position of the object, we cannot catch the image on the screen?
b) At which position of the object, the image distance and object distance are same?
c) At which position of the object, the object is placed between image and lens?
d) When we observe the formation of images for all positions of object in front of convex lens, what is the distance of the nearest image from the lens?

33. Draw the diagrams showing the defect of far sightedness and its rectification.

(or)

Draw the neat diagram and label the parts of the furnace used for the pyrochemical process in which the ore is heated in the presence of oxygen or in air below its melting point.

SSC PUBLIC EXAMINATIONS : APRIL 2022

Class: X | **MODEL PAPER - 5** | **Andhra Pradesh**

Time : 2:45 Hrs | **PHYSICAL SCIENCE** | **Max. Marks : 50**

Instructions:

1. *15 minutes of time is allotted for reading the question paper in addition to 2.30 hours for writing the answers.*
2. *All the answers should be written in the separate answer booklet.*
3. *There are four sections in the question paper.*
4. *There is internal choice in Section IV.*
5. *Write all the question visible & legible*

SECTION – I 12 × ½ = 6 M

Note:

1. *Answer all the questions.*
2. *Each question carries ½ mark*

1. The process of escaping of molecules from the surface of a liquid at any temperature is _____.

2. Water of crystallization in washing soda ..... [ ]

A) ½ B) 2 C) 5 D) 10

3. Imagine and write the value of angle of refraction at critical angle of incidence.

4. A : Lens is bounded by at least one curved surface.

B : Convex lens is called as convergent lens.

K) Only A is true

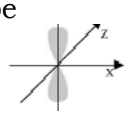
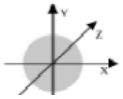
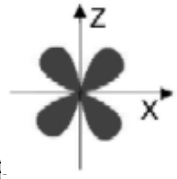
L) Only B is true

M) Both A and B are true

N) Both A and B are false

5. any one use of bifocal lens.

6.

Orbital	Shape
1. s Orbital	p) 
2. d Orbital	q) 
	r) 

Match the above

A) 1 – p, 2 – q B) 1 – q, 2 – r

C) 1 – q, 2 – r D) 1 – r, 2 – p

7. Which is the most electronegative element in the periodic table?

8. Which of the following is the bond angle in NH_3.

A) 104^o31^I **B)** 107^o48^I **C)** 109^o28^I **D)** 120^o

9. When asked Harika to give examples for High reactive metals, she stated as potassium, sodium, zinc, magnesium. By observing the examples given by Harika find and write which element is not a high reactive metal among them.

10. According Aufbau principle 'electrons' filled in the lowest energy orbital first, assume and write in which the electron enters first between 4s and 3d.

11. What is the SI unit of "Resistance".

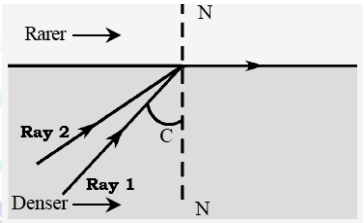
12. Write name of the scientist modified Bohr's atomic model by adding elliptical orbits.

SECTION – II 8 × 1 = 8 M

Note:

1. *Answer all the questions.*
2. *Each question carries **1** mark.*

13.



Ray 2 is incident with the angle greater than 'C'. Keeping in view of Critical angle concept re write and complete the diagram in your answer sheet.

14. Write any two required material to obtaining a relation between angle of incidence and angle of refraction.

15. What is least value for the angular momentum quantum number?

16. Four elements have the following arrangement in the periodic table.

B	C	N	O

On the bases above table

To which period these elements belong.

17. Give any one example for sp^2 hybridized molecule.

18. Write any other name of 'Acid – Base Reaction'.

19. What do you call the process of adjusting the focal length in such a way that the image is formed on retina and we see the object clearly by the ciliary muscles.

20. Write any two ores of iron you know.

SECTION – III 8 × 2 = 16 M

Note:

1. *Answer all the questions.*
2. *Each question carries **2** marks.*

21. Assume and write why oceans behave like heat "store houses" for the earth.

22. Let A, B, C material have given salt, water; when they react with non-metal oxide, metal oxide, acid respectively.

1) Among A, B, C which are acids, which are bases.
2) What is the change in colour when phenolphthalein add to B.

23. Write any two required material to do the activity to say that 'the rate of evaporation of a liquid depends on its surface area and vapour already present in surrounding air' and also write any one precaution to do this activity.

24. Doctor advised to use 2D lens. What is its focal length?

25. Explain what is Hund's rule briefly.

26. What is the shape of the following.

1) Water molecule
2) Ammonia molecule

27. Explain what happened to the electrical appliances, when we are not use fuse at our homes..

28. Write any two questions to understand how the concentration of ores takes place?

SECTION – IV 5 × 4 = 20 M

Note:

1. *Write answer for all the questions.*
2. *There is an internal choice for each question.*
3. *All questions have equal marks.*
4. *Each question caries 4 marks.*

29. Write the appropriate reasons for the following phenomenon.

a) Dogs pant during hot summer days
b) Formation of due on the surface of a cold soft drink bottle kept in open air

or

Write the differences between myopia and hypermetropia.

30. By observing the above table answer the following in A, B, C, D, E, F substances.

Substance	A	B	C	D	E	F
Formula	$CaOCl_2$	$NaHCO_3$	Na_2CO_3	$CaSO_4 \cdot \frac{1}{2} H_2O$	$CaSO_4 \cdot 2 H_2O$	$CuSO_4 \cdot 5 H_2O$

1) Which is used in soda-acid fire extinguishers?
2) Which is used for removing permanent hardness of water?
3) Which is used for disinfecting drinking water to make it free of germs?
4) Which is used for making toys, materials for decoration and for making surfaces smooth?

or

Classify the following into high, moderate, low reactivity metals separately.

Metal Name	Sodium	Silver	Gold	Iron	Magnesium	Lead	Mercury	Potassium
Formula	Na	Ag	Au	Fe	Mg	Pb	Hg	K

31. Write the lab activity to find the refractive index of a prism.

(or)

Write the lab activity to show that the rate of rise in temperature of the oil is higher than that of the rise in temperature of the water.

32. How the following properties of an element affects its ionization energy.

A) Nuclear charge
B) Shielding effect
C) Penetrating power
D) Stable configuration

(or)

A, B and C are there elements which atomic numbers 1, 6 and 8 respectively then

1) Which of these can't form double bond? Why?
2) Which of these can't form triple bond and can form double bond? Why?
3) Which of these can form double as well as triple bonds?

33. Draw the diagrams of the following and label their names.

1) Lens has one spherical surface curved inwards and the other surface bulged outwards.
2) Lens has two spherical surfaces curved inwards.
3) Lens has two spherical surfaces bulged outwards.
4) Lens has one spherical surface curved inwards and the other surface is plane.

(or)

Draw a neat diagram showing the method used for concentration of ore, in which the ore or impurity, one of them is magnetic substance and the other non-magnetic substance.